



US006340551B1

(12) **United States Patent**
Miyake et al.

(10) **Patent No.:** US 6,340,551 B1
(45) **Date of Patent:** *Jan. 22, 2002

(54) **POSITIVE TYPE PHOTSENSITIVE
IMAGE-FORMING MATERIAL FOR USE
WITH AN INFRARED LASER**

6,143,464 A * 11/2000 Kawauchi 430/270.1
6,153,353 A 11/2000 Van Damme et al.

FOREIGN PATENT DOCUMENTS

(75) **Inventors:** Hideo Miyake; Ikuo Kawauchi, both
of Shizuoka-ken (JP)

EP 794055 9/1997
JP 7-285275 10/1995

(73) **Assignee:** Fuji Film Co., Ltd., Minami-Ashigara
(JP)

OTHER PUBLICATIONS

(*) **Notice:** This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

Database WPI, Section Ch, Week 9903, Derwent Publications Ltd. JP7-285275.

* cited by examiner

Primary Examiner—Janet Baxter

Assistant Examiner—Yvette M. Clarke

(74) *Attorney, Agent, or Firm*—Burns, Doane, Swecker & Mathis, LLP

Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(57) **ABSTRACT**

(21) **Appl. No.:** 09/421,535

(22) **Filed:** Oct. 20, 1999

Related U.S. Application Data

(62) Division of application No. 09/173,719, filed on Oct. 16, 1998.

(30) **Foreign Application Priority Data**

Oct. 11, 1997 (JP) 9-285754
Nov. 14, 1997 (JP) 9-313778

(51) **Int. Cl.⁷** G03C 1/52

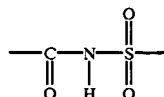
(52) **U.S. Cl.** 430/192; 430/156; 430/270.1;
430/281.1; 430/905; 430/944

(58) **Field of Search** 430/156, 270.1,
430/271.1, 273.1, 281.1, 905, 944

(56) **References Cited****U.S. PATENT DOCUMENTS**

4,132,168 A * 1/1979 Peterson 101/471
4,731,317 A * 3/1988 Fromson et al. 430/159
5,607,814 A * 3/1997 Fan et al. 430/258
5,691,114 A * 11/1997 Burberry et al. 430/302
5,840,467 A 11/1998 Kitatani et al.
5,922,502 A * 7/1999 Damme et al. 430/162
6,117,613 A * 9/2000 Kawauchi et al. 430/270.1
6,132,929 A * 10/2000 Nakamura et al. 430/270.1

A positive type photosensitive image-forming material for use with an infrared laser is provided. The material includes a substrate, a layer (A) containing not less than 50% by weight of a copolymer which contains, as a copolymerization component, not less than 10% by mol of at least one of the following monomers (a-1) to (a-3), wherein (a-1) is a monomer having in the molecule a sulfonamide group wherein at least one hydrogen atom is linked to a nitrogen atom, (a-2) is a monomer having in the molecule an active imino group represented by the following general formula (I):



(I)

and (a-3) is a monomer selected from acrylamide, methacrylamide, acrylate, methacrylate and hydroxystyrene, which respectively have a phenolic hydroxyl group; and a layer (B) containing not less than 50% by weight of an aqueous alkali solution-soluble resin having a phenolic hydroxyl group. The layer (A) and the layer (B) are laminated on the substrate in that order. At least the layer (B) contains a compound which generates heat upon absorbing light. The image-forming material has excellent stability of sensitivity with regard to concentration of a developing solution, i.e., has excellent development latitude.

20 Claims, 1 Drawing Sheet